

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Brian A. Batke
Serial No.: 09/967,124
Filing Date: September 28, 2001
Title: *Embedded Web-Accessible Industrial
Control System*

Art Unit: 2157
Examiner: Hussein A. El Chanti
Customer No. 63122
Atty. Dkt. No.: 01AB074 (1506.040)

APPELLANT'S APPEAL REPLY BRIEF

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Sir:

On or about January 26, 2007, Appellant appealed from the final rejection of claims 1-20. Appellant's Appeal Brief was submitted pursuant to 37 CFR § 41.37 on July 2, 2007. An Examiner's answer was filed on January 8, 2008. This Reply Brief in response to the Examiner's answer.

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INTRODUCTION

This Reply brief is directed only to the elements discussed by the Examiner's Answer, as well as any issues raised in the Appeal Brief that were not adequately addressed by the Examiner's Answer.

For brevity, sections that have been agreed upon by the Examiner have been removed. In particular, the Examiner accepted that the Applicant's sections identifying the following were correct: (1) *Real Parties in Interest*; (2) *Related Appeals and Interferences*; (3) *Status of Claims*; (4) *Status of Amendments After Final*; (5) *Summary of Claimed Subject Matter* and (6) *Grounds of Rejection to be Reviewed on Appeal*.

The Evidence Appendix and Related Proceedings Appendix provided in the Appellant's brief-in-chief are also incorporated by reference.

ARGUMENT

I. The Rejection of Claims 1-5, 10, 15-20 under 35 U.S.C. §103 (a) in light of Papadopoulos,

Lindner and Bronikowski

A. The Examiner continues to improperly rely on the Bronikowski reference

The Examiner states in his Response to Arguments (page 24) that he relies on Bronikowski to show "program development software". The Examiner further supplements the Bronikowski reference with the Ryan patent stating:

Therefore, Bronikowski reference that claims priority Ryan teaches the claimed limitation "program development software as claimed."

See page 24, last sentence, of the Examiner's answer, final full paragraph.

Bronikowski is not prior art. Any teaching, suggestion, or element of Bronikowski (e.g., a Web server) that is not also found in Ryan cannot be relied upon for this rejection. Thus, a proper rejection must rely on Ryan alone.

B. The Ryan reference without Bronikowski is insufficient to support the proposed combination with Papadopoulos and Lindner

As the Applicant has previously noted, neither Papadopoulos nor Lindner teach: (1) a controller program created remotely for an Internet connected PLC, or (2) program development

software uploaded from the PLC for the creation of that controller program, per the present independent claims. The Examiner previously relied on Bronikowski to fill this gap.

Relevantly, Bronikowski describes collaborative computer programming using the World Wide Web. In contrast, however, Ryan does not mention the Internet, does not describe the World Wide Web, does not teach PLCs having Web or Internet applications, connections, or servers. At best, Ryan stands for the proposition that software to develop PLC programs was known. This is insufficient to support the combination proposed by the Examiner when that combination is not taught or suggested by Papadopoulos nor Lindner.

C. Neither Papadopoulos nor Lindner teach a PLC serving its own program development software

The Examiner has stated that neither Papadopoulos nor Lindner teach "program development software" while inconsistently arguing that both teach providing "program development software" onto the Internet for generating "controller programs". See generally page 25, final two paragraphs, to page 26, second paragraph. This inconsistency is founded upon a fluid and inconsistent definition of "controller program" and "program development software".

Per the specification (e.g., paragraph [0003]), and as would be understood to one of ordinary skill in this art, a "controller program" is the program executed by a PLC to generate output signals to an industrial process based on the input signals from that process. Thus, a controller program is that which allows a PLC to effect an automatic or semiautomatic control of a process or machine. "Program development software", in the context of the claims and the specification, is software that can be employed to create or modify the "controller programs". See generally paragraph [0009] of the published present specification.

The Examiner contends that Papadopoulos teaches a "controller program" in the form of a web page that allows remote control of a PLC by inputs from a human operator. While arguably a web page allowing remote control might be considered a "controlling program", it is clearly not a "controller program" because it isn't responsible for automatic control. For the same reason, the software reading the front panel switches of the PLC is not a "controller program".

Equally problematic is the "program development software" purportedly found in Papadopoulos. The software involved in sending the Papadopoulos web page to a remote user,

can not be considered "program development software" for creating a "controller program" because the web page that is served is pre-existing and not modified or create by the remote user in any way.

II. The Rejection of Claims 6-9 and 11-12 Under 35 U.S.C. §103(a) in Light of Papadopoulos, Lindner, Hauet, and Bronikowski

A. Neither Papadopoulos, Lindner, nor Hauet teach uploading a controller program from a PLC to a remote device for modification

The Examiner suggests that Papadopoulos teaches this uploading and modification process by virtue of displaying a web page sourced from the PLC. As discussed above, manual input to a web page is not the generation of a "controller program" for a PLC. In addition, sending commands from an operator to a PLC from a remote web page is not "modification" of a controller program anymore than typing into a word processor is a modification of the word processor program.

The Applicant's position in this regard is consistent with that expressed by the Examiner during prosecution that "[n]either Papadopoulos nor Lindner teach a remote device being able to modify a program".

Otherwise, the Examiner has reiterated the objection made during prosecution without response to the arguments raised in Appellant's brief with respect to Hauet.

III. The Rejection of Claim 13 Under 35 U.S.C. §103(a) Over Papadopoulos In View of Papadopoulos, Lindner, Chan, And Bronikowski

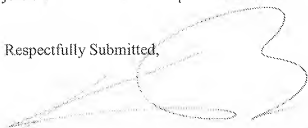
The Examiner has reiterated the objection made during prosecution without response to the arguments raised in Appellant's brief with respect to Chan.

CONCLUSION

The combination of references relied upon does not fairly teach the limitations of claims 1, 15 and 18, nor the claims dependent on these claims by virtue of their dependency, nor specifically the limitations of claim 6, 11, 12 or claim 13. Therefore, the Applicant requests that

the Board overturn the Examiner's rejection of these claims and pass all claims 1-20 to allowance.

Respectfully Submitted,

A handwritten signature in dark ink, appearing to read "Keith M. Baxter", is written over a horizontal dotted line.

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CLAIMS APPENDIX

1. (previously presented) An industrial control system for controlling an industrial process comprising:

a plurality of I/O devices capable of exchanging signals with the industrial process;
a web access module including a web server coupled to a programmable logic control (PLC), wherein the web server is capable of being coupled to at least one remote device via the Internet, and wherein the PLC is coupled to the I/O devices;

wherein the web access module further includes program development software including application software that can be utilized to generate a controller program for at least one of the PLC and one of the I/O devices, and

wherein the web server is capable of providing the program development software onto the Internet for transmission to the remote device, so that the remote device is able to generate the controller program.

2. (original) The industrial control system of claim 1, wherein the PLC and the web server are one of: (a) implemented in a single computer executing two programs; and (b) implemented respectively in two different computers that are in communication via a communication link.

3. (previously presented) The industrial control system of claim 1, wherein the PLC executes the controller program, once the remote device has generated the controller program using the application software and the controller program has been returned to the web access module from the remote device.

4. (previously presented) The industrial control system of claim 1, wherein the program development software is stored within at least one of the PLC, the web server, a memory device within the web access module, a memory device within at least one of the I/O devices and a remote memory device.

5. (original) The industrial control system of claim 4, wherein an existing controller program is stored within at least one of the PLC, the web server, a memory device within the

web access module, a memory device within at least one of the I/O devices and a remote memory device.

6. (previously presented) The industrial control system of claim 5, wherein the web server is capable of sending the existing controller program along with the application software to the remote device by way of the Internet, so that the remote device is able to modify the existing controller program to generate the controller program.

7. (original) The industrial control system of claim 6, wherein it is allowable for the remote device to remotely store a backup copy of the controller program generated based upon the existing controller program.

8. (previously presented) The industrial control system of claim 6, wherein the program development software includes a plurality of versions of application software, and wherein the existing controller program and a plurality of additional existing controller programs are stored in association with the respective versions of the application software that were employed to generate the respective existing controller programs.

9. (previously presented) The industrial control system of claim 6, wherein the program development application software that is sent along with the existing controller program is of a version that was used to generate the existing controller program.

10. (original) The industrial control system of claim 1, wherein the web server is coupled to the Internet by way of an Internet interface, and wherein the PLC is coupled to the I/O devices by way of a control network interface.

11. (previously presented) The industrial control system of claim 1, wherein the web server provides the program development software to the remote device in response to a request received from the remote device.

12. (previously presented) The industrial control system of claim 1, wherein the web

server provides onto the Internet, in response to a request received from the remote device, information indicative of another Internet-accessible location at which the remote device can obtain desired program development software.

13. (previously presented) The industrial control system of claim 1 wherein, prior to the sending of the program development software to the remote device, the web access interface must receive a signal indicative of at least one of a payment agreement and a credit card number from the remote device.

14. (previously presented) The industrial control system of claim 13, wherein the signal must be received only when the program development software to be sent is a new version of the application software that has not earlier been communicated to the remote device.

15. (previously presented) In an industrial control system having a plurality of control devices that operate to monitor and control an industrial process, a web access module coupled to the plurality of control devices, the web access module comprising:

a memory means for storing program development software including application software utilized to generate a controller program for operation on at least one of the web access module and one of the control devices; and

a processor means coupled to the memory means, the processor means for sending the program development software to a remote device and receiving communications concerning the controller program from the remote device, wherein the controller program is generated at the remote device through the use of application software included with the program development software,

wherein the web access module is further adapted to allow for communications between the processor means and the remote device by way of the Internet.

16. (previously presented) The web access module of claim 15, wherein the processor means includes a web server and a PLC, and wherein an existing controller program is stored by the memory means in association with a particular version of the program development application software.

17. (original) The web access module of claim 16, wherein the control devices are selected from the group consisting of I/O modules, motor controllers, and PLCs.

18. (previously presented) A method of generating a controller program for at least one control device of an industrial control system that monitors and controls an industrial process, the method comprising:

providing a web server within the industrial control system, wherein the web server is capable of communicating with at least one remote device via the Internet;

obtaining program development software including application software capable of being used to generate the controller program;

providing the program development software onto the Internet for transmission to the at least one remote device; and

receiving from the at least one remote device the generated controller program.

19. (previously presented) The method of claim 18, further comprising: obtaining an existing controller program from a memory device on which the existing controller program is stored, the program development software being associated with the existing controller program;

providing the existing controller program onto the Internet for transmission to the at least one remote device; and

after receiving the generated controller program from the at least one remote device, storing the generated controller program on the memory device in association with a version of the application software that was utilized to generate that controller program.

20. (original) The method of claim 19, wherein the web server and a PLC are included within a web access module, wherein the PLC is coupled to a plurality of additional control devices within the industrial control system, and wherein the controller program is utilized by at least one of the PLC and one of the additional control devices.--

CLAIMS APPENDIX

1. (previously presented) An industrial control system for controlling an industrial process comprising:

- a plurality of I/O devices capable of exchanging signals with the industrial process;
- a web access module including a web server coupled to a programmable logic control (PLC), wherein the web server is capable of being coupled to at least one remote device via the Internet, and wherein the PLC is coupled to the I/O devices;

- wherein the web access module further includes program development software including application software that can be utilized to generate a controller program for at least one of the PLC and one of the I/O devices, and

- wherein the web server is capable of providing the program development software onto the Internet for transmission to the remote device, so that the remote device is able to generate the controller program.

2. (original) The industrial control system of claim 1, wherein the PLC and the web server are one of: (a) implemented in a single computer executing two programs; and (b) implemented respectively in two different computers that are in communication via a communication link.

3. (previously presented) The industrial control system of claim 1, wherein the PLC executes the controller program, once the remote device has generated the controller program using the application software and the controller program has been returned to the web access module from the remote device.

4. (previously presented) The industrial control system of claim 1, wherein the program development software is stored within at least one of the PLC, the web server, a memory device within the web access module, a memory device within at least one of the I/O devices and a remote memory device.

5. (original) The industrial control system of claim 4, wherein an existing controller program is stored within at least one of the PLC, the web server, a memory device within the

web access module, a memory device within at least one of the I/O devices and a remote memory device.

6. (previously presented) The industrial control system of claim 5, wherein the web server is capable of sending the existing controller program along with the application software to the remote device by way of the Internet, so that the remote device is able to modify the existing controller program to generate the controller program.

7. (original) The industrial control system of claim 6, wherein it is allowable for the remote device to remotely store a backup copy of the controller program generated based upon the existing controller program.

8. (previously presented) The industrial control system of claim 6, wherein the program development software includes a plurality of versions of application software, and wherein the existing controller program and a plurality of additional existing controller programs are stored in association with the respective versions of the application software that were employed to generate the respective existing controller programs.

9. (previously presented) The industrial control system of claim 6, wherein the program development application software that is sent along with the existing controller program is of a version that was used to generate the existing controller program.

10. (original) The industrial control system of claim 1, wherein the web server is coupled to the Internet by way of an Internet interface, and wherein the PLC is coupled to the I/O devices by way of a control network interface.

11. (previously presented) The industrial control system of claim 1, wherein the web server provides the program development software to the remote device in response to a request received from the remote device.

12. (previously presented) The industrial control system of claim 1, wherein the web

server provides onto the Internet, in response to a request received from the remote device, information indicative of another Internet-accessible location at which the remote device can obtain desired program development software.

13. (previously presented) The industrial control system of claim 1 wherein, prior to the sending of the program development software to the remote device, the web access interface must receive a signal indicative of at least one of a payment agreement and a credit card number from the remote device.

14. (previously presented) The industrial control system of claim 13, wherein the signal must be received only when the program development software to be sent is a new version of the application software that has not earlier been communicated to the remote device.

15. (previously presented) In an industrial control system having a plurality of control devices that operate to monitor and control an industrial process, a web access module coupled to the plurality of control devices, the web access module comprising:

a memory means for storing program development software including application software utilized to generate a controller program for operation on at least one of the web access module and one of the control devices; and

a processor means coupled to the memory means, the processor means for sending the program development software to a remote device and receiving communications concerning the controller program from the remote device, wherein the controller program is generated at the remote device through the use of application software included with the program development software,

wherein the web access module is further adapted to allow for communications between the processor means and the remote device by way of the Internet.

16. (previously presented) The web access module of claim 15, wherein the processor means includes a web server and a PLC, and wherein an existing controller program is stored by the memory means in association with a particular version of the program development application software.

17. (original) The web access module of claim 16, wherein the control devices are selected from the group consisting of I/O modules, motor controllers, and PLCs.

18. (previously presented) A method of generating a controller program for at least one control device of an industrial control system that monitors and controls an industrial process, the method comprising:

providing a web server within the industrial control system, wherein the web server is capable of communicating with at least one remote device via the Internet;

obtaining program development software including application software capable of being used to generate the controller program;

providing the program development software onto the Internet for transmission to the at least one remote device; and

receiving from the at least one remote device the generated controller program.

19. (previously presented) The method of claim 18, further comprising: obtaining an existing controller program from a memory device on which the existing controller program is stored, the program development software being associated with the existing controller program;

providing the existing controller program onto the Internet for transmission to the at least one remote device; and

after receiving the generated controller program from the at least one remote device, storing the generated controller program on the memory device in association with a version of the application software that was utilized to generate that controller program.

20. (original) The method of claim 19, wherein the web server and a PLC are included within a web access module, wherein the PLC is coupled to a plurality of additional control devices within the industrial control system, and wherein the controller program is utilized by at least one of the PLC and one of the additional control devices.